



Australian Government

PMBWELD301E Join polyethylene plastic pipelines using butt welding

Release: 1

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Modification History

Release 1. Unit code and title changed. Application changed. Elements and Performance Criteria changed. Range of Conditions removed. Assessment Requirements changed. Supersedes and is equivalent to PMBWELD301 Butt weld polyethylene plastic pipelines.

Application

This unit describes the skills and knowledge required to join polyethylene (commonly referred to as PE) plastic pipelines using butt welding, both in the field and under factory conditions.

This unit applies to an experienced technician working alone or as part of a team.

The unit principally refers to the practical application of polymer material science to employ molecular diffusion across the pipe faces, under controlled conditions, to achieve welding across the joint.

No licensing or certification requirements exist at the time of publication. Relevant legislation, industry standards and codes of practice within Australia must be applied.

Pre-requisite Unit

Nil.

Competency Field

Welding – Plastic Pipelines, Plastic Welding

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
1. Identify compatibility of materials for welding	1.1 Identify materials as polyethylene from job specifications and worksite instructions 1.2 Check compatibility of polyethylene materials and pipes supplied with welding requirements from specifications
2. Calculate pipe welding parameters	2.1 Identify welding machine type and operating data from job specifications 2.2 Identify pipe materials and dimensions from job specifications

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	2.3 Perform welding parameter calculations, including those for durations and pressure, to reflect specifications of individual welding machines and pipe details 2.4 Prepare field operational sheets according to workplace procedures
3. Maintain and adjust welding equipment	3.1 Set up welding equipment and work area to suit job requirements 3.2 Ensure safety equipment is available and operational 3.3 Inspect equipment, and report on and rectify non-conforming equipment 3.4 Check operation of equipment and adjust heating, trimming, and pressure systems using equipment readings and specifications
4. Perform butt welding operations	4.1 Assemble pipeline components in welding machine as required to support welding task 4.2 Clean, align and trim pipe ends according to workplace procedures 4.3 Perform heating, welding, and cooling phases using calculated butt welding parameters 4.4 Monitor and accurately record achieved butt welding parameters for each joint 4.5 Clean-up equipment following completion of welding according to equipment instructions 4.6 Clean-up work area, and apply waste management strategies to dispose of scrap materials according to workplace procedures 4.7 Use personal protective equipment (PPE) according to workplace procedures
5. Visually inspect completed joints	5.1 Identify quality standards for visible characteristics of joints from job specifications 5.2 Assess joints against standards and report results, including non-conforming results 5.3 Accurately maintain records and logbooks

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

- Numeracy skills to calculate welding parameters, and interpret equipment readings and technical specifications.
- Reading skills to interpret job specifications and workplace procedures.
- Writing and oral communication skills to record and report on welding of polyethylene plastic pipelines using butt welding techniques.

Other foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Unit Mapping Information

Supersedes and is equivalent to PMBWELD301 Butt weld polyethylene plastic pipelines.

Links

Companion Volume implementation guides are found in VETNet – -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBWELD301E Join polyethylene plastic pipelines using butt welding

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Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and demonstrated the ability to:

- join polyethylene plastic pipelines using butt welding, at least once, to meet job specifications.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- the functions and operating principles of butt welding equipment, components and ancillary equipment
- types of butt welding processes and their effect on the welded product
- Australian Standards relevant to the materials being used and products being made
- production workflow sequences and materials demand
- typical quality standards at each stage of the welding process
- key variables that may affect product quality, and how to manage them, including:
 - temperature
 - pressure
 - alignment
 - uniformity
 - weld bead appearance
 - tolerance for weld and joint
 - consistency of weld
 - mechanical strength of weld
- worksite environment factors that may affect weld quality and appropriate remedies
- typical process and product problems, including early warning signs, possible causes and corrective actions
- organisational procedures relevant to the work environment and job role
 - hazards that may arise in the job or work environment, and:
 - their possible causes
 - potential consequences.
- appropriate risk controls.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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